

The Music Studio™

Complete Instructions for the
Commodore® 64™ and 128™
and Atari® 800™ and XL™ and XE™
Series Computers

Designed and developed by
Audio Light, Inc.

The Music Studio is a "tool kit" for creating music, songs and sounds. Whether you're a novice composer or an expert musician, you'll find it powerful and easy to use, functional and fun.



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CREDITS

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STEP INTO THE MUSIC STUDIO

With *The Music Studio* and a Commodore or Atari computer, you have a composer's tool kit at your fingertips.

You can compose, edit and store music and lyrics and play them back. If you have a Commodore and a graphics printer, you can print sheet music of your compositions, including the lyrics.

You can create and store a wide array of instruments and sound effects for your own "Sound Library." And after you've composed a song, you can hear it played back using those instruments or a variety of pre-programmed instruments.

A special feature called "The Paintbox" lets you improvise compositions by just "painting" notes onto the staff.

Here's a sampling of *The Music Studio*'s features:

Simple to use with a joystick or touchpad on the Commodore or with a joystick on the Atari.

Places up to three notes per column on the grand staff.

Includes most musical notations, such as sharps, flats, rests, ties, dotted notes and triplets.

Changes keys automatically—no more laborious transposing by hand.

Displays up to four verses of lyrics at a time, right beneath the melody.

Customizes all instruments and sounds in a Sound Engineering Room.

Plays up to three instruments at once.

Works with MIDI-compatible instruments (such as electronic keyboards) on a Commodore with a Passport MIDI Interface™.

This manual is your guide to *The Music Studio*. The BASICS section will get you started. In no time you'll be writing and saving your own songs and sound effects and adding lyrics to your compositions. BEYOND THE BASICS, a reference guide, takes you on a tour of the entire program. The APPENDIX provides details on using a MIDI-compatible instrument with *The Music Studio*. Finally, there's a SHORT GLOSSARY OF MUSICAL TERMS at the back of the manual.

You'll find a list of *The Music Studio* screen symbols on a separate reference card.

THREE SCREENS

A "screen" is what appears on the television or monitor. A "menu" is a group of choices offered on a screen. Some screens in *The Music Studio* have more than one menu.

The Music Studio has three main screens:

The Music Editor. This screen offers every function necessary for musical composition. Use it for creating, editing and storing music and lyrics.



The Sound Engineering Room. Use this screen for creating custom instruments and sound effects and adjusting the pre-programmed sounds.



The Music Paintbox. This screen lets you compose music without using standard musical notation. You can play back your "painted" compositions any time and instantly transform them into standard musical notation.



GETTING STARTED

If you plan to save any of your musical compositions, you'll need at least one data disk to store them on. Make sure that it's blank or that it contains files that you don't want. *To store your songs, a disk must be formatted by The Music Studio* according to the instructions in "Saving a Song" on page 15.

If you plan to print any of your compositions, be sure that your printer is properly connected and turned on *before* you turn on your Commodore computer to start working with *The Music Studio*.

If you plan to use *The Music Studio* with a MIDI-compatible instrument and a Passport MIDI Interface, make sure that the MIDI interface is properly installed and the instrument properly connected to your computer before loading *The Music Studio*; follow the instructions in your computer and instrument owner's manuals, and see the APPENDIX on page 52.

Loading Instructions for the Commodore 64 and 128

1. Insert *The Music Studio* disk, label side up, into the disk drive, then turn on the drive, the computer and the TV or monitor.
2. On the Commodore 64, type **LOAD"*",8,1** and press the **RETURN** key. Give the program time to load (approximately one minute).

On the Commodore 128, type **GO 64** and press **RETURN**, then type **Y** and press **RETURN**. When the blue screen appears with the word "READY," type **LOAD"*",8,1** and press **RETURN**. The program will load in approximately one minute.

When the program is finished loading, the following message will appear on the screen:

**Plug Touchpad into Port 1
or
Plug Joystick into Port 2
Hit Button When Ready**

3. If you're using a touchpad, plug it into port 1. If you're using a joystick, plug it into port 2.

WARNING: If you plug either device into the wrong port, you won't be able to continue. Turn off the computer and start over.

4. Press either the touchpad button or joystick button. The selection screen will appear, and you'll hear the introductory song to *The Music Studio*.

Loading Instructions for the Atari 800 and XE and XL Series

1. Plug a joystick into port 1.
2. Insert *The Music Studio* disk, label side down, into the disk drive and turn on the drive.
3. When the busy light on the drive goes off, turn on the computer and the TV or monitor.

The title screen will appear while the program is loading, followed by a selection screen with the introductory song to *The Music Studio*.

Entering *The Music Studio*

From the selection screen, you can go either to the Music Paintbox or to the Music Editor screen.

If you're using a joystick, a black baton appears automatically on the screen. If you're using a touchpad, make the baton appear by touching the pad with the stylus or your finger.

To go to the Music Editor, place the baton on the right side of the selection screen and press the joystick or touchpad button.

To go to the Paintbox, place the baton on the left side of the selection screen and press the button.

NOTE: You can go from the Music Editor to the Paintbox and back at any time. With a joystick, move the baton off the bottom of the screen and press the button. With a touchpad, move the stylus to the bottom of the pad, hold it there and press the button.

Your Composing Tool

Your composing tool on the Commodore is either a joystick or touchpad; on the Atari, you'll compose with a joystick. With this tool, you'll move a "cursor"—the baton or other shape (notes and other musical notations)—around the screen. You'll write and edit all your music by pointing the baton at a menu option and then pressing the joystick button or touchpad button. *In this manual this process is called "pointing to" or "selecting" an option or feature.*

NOTE: Always use the pointed end of the baton, not the rounded end, to select an option.

After you've selected a composing option, writing music on the screen is as simple as moving the baton onto the grand staff—the two sets of five lines on the upper half of the screen. The top set of lines is called the *treble staff*; the bottom set is the *bass staff*. Together, they make up the *grand staff*. As you compose, you'll see the baton take on different colors and shapes, depending on the option you choose.

THE BASICS

Loading a Song

Before beginning to write music of your own, take a few minutes to preview what music looks and sounds like on *The Music Studio*. This and the next two sections describe how to load and play a song and how to move through a score displayed on the screen.

The Music Studio comes with pre-programmed songs already stored on the program disk; try loading and playing any of these. The procedures are the same for loading and playing your own compositions, which you'll be storing on your own disks (see "Saving a Song," page 15).

To load a song:

1. Point at the disk symbol (1) and press the button. You'll go to the Music Library area of the Utilities Menu, the menu you'll use to direct all disk functions such as loading and saving songs. The words "Music Files" will appear at the top of the screen with a "library" of songs.

On the Commodore, you'll find two "pages" of pre-programmed songs. Page 1 has original compositions created by Ed Bogas using *The Music Studio*. Page 2 includes some old favorites and sound effects. On either system your own song libraries may also contain more than one page of songs. To switch back and forth between pages, point at either one of the arrows on the right side of the screen.

(If you're lost, you could be in the Music Paintbox. If you are, find your way to the Music Library by moving the cursor to the bottom of the screen and pressing the button. When you see the Music Editor screen, point at the disk symbol and press the button.)

2. Point at **Load** and press the button. On the Commodore, **Load** will change color from blue to black; on the Atari, an arrow will appear just to the right of **Load**.
3. Move the baton up to the large box containing the song titles. The baton will disappear, and you'll be able to move the word **Load** up and down the list of song titles.

4. Load any song by placing **Load** in front of its title and pressing the button. The message "Loading (title)" will appear in the message box in the center of the screen.
5. When "Loading (title)" disappears, the song has finished loading. Return to the Music Editor screen by moving the baton off the bottom of the screen and pressing the button. (With the touchpad this can be a little tricky. Be sure to move the baton down the screen and off the bottom, then press the button.)

Playing a Song

You can listen to a song with the notes moving across the screen ("scrolling") or with the notes stationary.

To play a song with the notes scrolling:

1. Point at the running note symbol (2) and press the button.
2. Press the button again to stop the scrolling and turn off the music.

To play a song without scrolling:

1. Point at the ear symbol (3) and press the button.
2. Point at the ear symbol (3) again and press the button to stop the music.

NOTE: When a song is scrolling, a small purple arrow (Commodore) or a box (Atari) appears beneath the note or column of notes being played. If the arrow or box is flashing or is not there at all, the scrolling can't keep up with the song—as, for example, when the song has a lot of short (sixteenth) notes.

"Fast Forward" and "Reverse"

The Music Studio lets you advance or reverse the electronic "sheet music" as you're writing, editing or listening to music. You can instantly scroll all the way to the end or the beginning of a song, five columns at a time or column by column.

A "column" is a single note, rest or measure or a stack of two or three notes.

To scroll to the end or the beginning of a song:

1. Stop the song, if necessary, by pressing the button. If you're scrolling, the baton will reappear.
2. Point at the **Mu** symbol (4) and press the button. The menu at the bottom right of the screen will change.

NOTE: Activating each of the four menu symbols—**Ky**, **Mu**, **Ed** and **Sd**—causes a different menu to appear on the right side of the screen. Each has a different function. To find out more about them, see pages 38–41.

To get to the end of a song, point at the end-of-song symbol (5) in the lower right corner and press the button.

Notice the number above the instrument name at the left center of the screen. This number matches the column number that begins the last page of your song. To find the *total* number of columns in a song, move the baton to the staff and place it on the last column.

To get to the beginning of a song, point at the beginning-of-song symbol (6) to the left of the end-of-song symbol and press the button. The column number will read "001."

To scroll five columns at a time:

1. Point at the red arrow below the end-of-song symbol (5) and press the button. The music will scroll to the left five columns, and the column number will increase by five.
2. Point at the red arrow below the beginning-of-song symbol (6) and press the button. The music will scroll to the right five columns, and the column number will decrease by five.

To scroll one column at a time:

1. Move the baton to the far right edge of the screen, above the menu. On the Commodore, a red arrow pointing to the right will appear on the far *left* side of the screen; on the Atari, a flashing arrow pointing to the right will appear on the far *right* side of the screen.
2. Press the button several times. For each push of the button, you'll move the music one column to the right.
3. To scroll to the left one column at a time, move the baton to the left side of the screen, above the menu, until the arrow points to the left. Press the button.

Holding the button down will scroll the music continuously.

Clearing the Screen

You can erase a song from the screen to make room for a new one. It's important to remember that if you erase a song without first saving it on disk, it's gone forever. If you want to work on a new composition without throwing away the old one, you must save the old one. (If the song on the screen is one of the pre-programmed songs from *The Music Studio* program disk, you can safely erase it from the screen—the song will remain on the disk for you to reload any time.) To learn how to save a song, see page 15.

To erase a song:

1. Point at the trash can symbol (7) and press the button once. A sound warns you that you're about to erase a song.
2. If you don't want to erase the song, *don't press the button*. Instead, move the baton away from the trash can. If you do want to erase the song, press the button a second time. The song will disappear from the screen.

Creating a Song

While working with the Music Editor screen, you can place notes, rests, measure bars and other musical symbols on the grand staff. You can build a piece with accidentals, ties or triplets, experiment with different key signatures and test different instrument sounds for your piece.

Choosing an Instrument

The Music Studio comes with 15 different instrument sounds, represented on an "instrument palette" on the Music Editor and Paintbox screens and listed on a menu in the Sound Engineering Room.

You can select different instruments for a song—varying the sounds note by note or by entire sections of the piece.

To select an instrument, first point at the **Sd** symbol (11) and press the button. The lower right side of the screen will display a new menu.

On the Commodore, you must load instrument sounds from a special sound file into the computer's memory. (If you have an Atari, skip these five steps.) Follow these steps:

1. Point at the ADSR symbol (12) and press the button to go to the Sound Engineering Room. (For details about this section of the program, see page 17.) Take a look at the list of instruments available.
2. Point at the disk symbol (1) and press the button to go to the "Sound Files" screen.
3. Load the **INSTRUM**'TS file by following the same procedure as you did for loading a song (see page 6). A list of instruments will appear.
4. Move the baton to the bottom of the screen and press the button to go back in the Sound Engineering Room. Notice how each instrument and sound effect is represented by a different color.
5. With the baton at the bottom of the screen, press the button once more to return to the Music Editor screen.

Each of the 15 instruments is represented on the instrument palette by a color (Commodore) or color or pattern (Atari). This palette is located in the upper right portion of the **Sd** menu.

On the Commodore, the color of the screen border matches the color assigned to the instrument that's activated. On the Atari, a small rectangle under the instrument tells you that it's active. The name of the instrument appears just below the column number (001) on the left side of the screen.

Point at any color or pattern to choose an instrument and press the button. When you move the baton to the grand staff and place a note, the note will adopt the color or pattern and sound of the instrument you picked. This helps you keep track of the instruments you're using. You can use all 15 instruments in a song.

Placing Notes

To start composing with a chosen instrument, all you have to do is pick a note value and begin placing notes on the staff.

To select and place notes:

1. Point at the note symbol (8) and press the button. A small square below the note will tell you that this feature is activated. (On the Atari the square flashes.)
2. Press the button again and again to "cycle through" the different note durations (from a whole note to a sixteenth note) until you find the note you want.
3. Move the baton to the grand staff. The cursor will change from a baton into a blinking note as you move it to the grand staff area. As you move the note up and down the staff, you'll hear tones corresponding to the lines and spaces touched by the blinking note. The letter at the upper left corner of the screen indicates which note is sounding.
4. To place a note, press the button and move the cursor aside. A stationary note will appear in its designated position.

You can place notes on the staff only when the baton turns into a cursor note. If you move the baton too far to the left or right, it won't turn into a note.

Continue placing notes on the staff, using the cursor note. Both the Commodore and Atari have three "voices"—this means you can enter up to three notes in any one column. If you try to enter a fourth note, the program won't accept it.

The stationary bracket that appears below the staff marks the final note of your piece. As the song lengthens, this bracket will move to the right.

Erasing Notes

In revising a composition, you'll probably need to erase unwanted notes on the staff.

To erase any note:

1. Place a cursor note of any value on top of the note you want to erase and press the button. Make sure you place the cursor directly over the body of the note you want to erase, or you'll place a new note instead.
2. Move the cursor note aside. The note you wanted to erase will be gone.

Setting the Key

The first time you go to the Music Editor screen, the key signature is set to the key of C. This is the “default” value for the key signature; unless you change to another key signature, your song will automatically be in the key of C.

To change the key signature:

1. Point at the **Key** symbol (14) and press the button. The menu at the bottom right on the screen will change.
2. Point at the key you want in the upper right section of the menu, then press the button.

You’ll see these changes on the screen: the new key will appear in the right-hand box of the key changer symbol (10) and in the key signature to the left of the grand staff, and the appropriate sharps and flats will appear on both staves.

After you change the key, you must tell the program to transpose the notes—shift the notes up or down in pitch to conform to the new key. Transposing the notes prevents the song from sounding “off-key.”

Under your direction, *The Music Studio* transposes automatically. Just point at the **t** in the key changer symbol (10) and press the button. The new key will now appear in both the left and right-hand boxes above the **t**.

Placing Rests, Sharps, Flats and Naturals and Inserting Measure Bars

Adding these notations to your compositions is much like placing notes.

To place a rest:

1. Point at the rest symbol (13) and press the button. Notice that the “default” rest symbol is a quarter rest—the program automatically uses the quarter rest.
2. Press the button again and again to cycle through the five rests available, from a whole rest to a sixteenth rest, until you see the one you want.

3. Move the baton up to the staff area. The baton will turn into a flashing rest symbol (your new cursor) that matches the rest symbol you chose.
4. Place the rest on the staff in the same way you place notes.

To add sharps, flats and naturals to your notes:

1. Point to the key symbol (14) and press the button. The key symbol will disappear and a natural symbol will appear in its place.
2. Press the button several times to see your choices (flat, sharp and natural) and stop when you get to the symbol you want.
3. Activate the note symbol if it is not already on. You'll know it's on if there's a small rectangle (a flashing rectangle on the Atari) underneath the note symbol. Sharps, flats and naturals can only be placed on the staff when accompanied by a note, so the note symbol must be on.
4. Move the baton to the grand staff. It will turn into a flashing note with a sharp, flat or natural attached.
5. Place the note anywhere on the staff. If you used a sharp, this note will be "sharped," or raised a half tone; a "flat" will lower the note a half tone; and a natural will cancel a sharp or flat if you're using a key that has sharps or flats (see "Setting the Key" on page 12).

To place a measure bar:

1. Point at the **Mu** symbol (4) and press the button. The Mu menu will appear on the lower right side of the screen.
2. Point at the measure bar symbol (15) and press the button. The baton will turn yellow (Commodore) or green (Atari).
3. Move the baton up to the staff where you want to place a measure bar and press the button.

To delete a measure bar:

1. Point at the **Ed** symbol (16) and press the button. The **Ed** sub-menu will appear on the lower right side of the screen.
2. Point at the delete column symbol (17)—the red note with a minus sign on it—and press the button. The baton will turn red.
3. Move the baton up to the staff, point to the measure bar you want to erase and press the button. The measure bar will disappear.

Adding Lyrics to a Song

The Music Studio lets you add up to four separate verses to a song. You use the keyboard to write and edit lyrics in the same way you write ordinary text.

Because lyrics often require more space than the notes that accompany them, you may need to open up space between the notes on the staff in order to fit your words to the music; use the **Insert Column** option described on page 40 to do this.

To add lyrics:

1. Point at the **Words** symbol (18) on the Music Editor screen and press the button.
2. Point at a space to the right of the number 1 *below* the note where you want the first word to go. Press the button. The baton will disappear and a yellow square (Commodore) or black square with a rounded top (Atari) will take its place. This is your new cursor.
3. Type in your words on the keyboard, just as you would write ordinary text. As you reach the right edge of the screen, the music will scroll to the left to allow you to continue writing lyrics.
4. When you finish typing the first verse, press the RETURN key. The baton will reappear.
5. If you like, repeat steps 2, 3 and 4 to add second, third and fourth verses. When you've added all the verses you want, press the RETURN key. The black baton will reappear.

Move the baton to the bottom of the screen and press the button to return to the Music Editor screen. If you scroll through the music, each of the verses will appear underneath the music.

NOTE: If you try to add lyrics to a song that's too long to fit in your computer's memory, you'll see this message on the screen: "NOT AVAILABLE. SONG TOO LONG."

Saving a Song

Once you've composed a song, you'll probably want to save it on a disk so you can load, play and revise it whenever you want. *You cannot save a song on The Music Studio program disk.* This built-in safety feature prevents you from accidentally destroying the program.

If you want to save your songs, you'll need at least one additional disk. This disk should be either blank or contain files that you don't mind erasing.

Before you can save songs on a disk, you must first format ("initialize") it so that it will accept your music files. Once you format a disk, you don't have to format it again.

All disks used with *The Music Studio* must be formatted by *The Music Studio* before you use them. *Other formatting programs will not work.*

To format a disk:

1. Point at the disk symbol (1) on the Music Editor screen. **Do not select the disk symbol unless *The Music Studio* program disk or another disk is in the drive.** Press the button. You'll go to the "Music Library."
2. Insert the disk to be formatted in the drive and shut the door.
3. Point at **Init Disk** in the lower right-hand box and press the button. The message "Erase disk? 'Y' for Yes" will appear on the screen.

<p>WARNING: Formatting a disk automatically erases all files on the disk.</p>
--

4. If you don't want to erase and format the disk, press any key to cancel the command. Otherwise, press the Y key on the keyboard to format the disk.
5. The program will ask you to name the disk. Type in a name on the keyboard. On the Commodore, you can use up to 11 letters, spaces and numbers combined; on the Atari, you can use up to 12 letters, spaces and numbers combined. Press the RETURN key after typing in the name.

The message "Formatting disk," along with the name you provided, will appear, and the busy light on the disk drive will glow as the disk is being formatted. When the baton reappears, formatting is complete.

To save a song on a formatted disk:

1. On the Music Editor screen, point at the disk symbol (1) and press the button.
2. Insert a formatted disk in the drive if you have not already done so.
3. Point at **Save** and press the button. The word **Save** will turn black.
4. Move the baton to the long narrow box. The word **Save** will appear, followed by a colon, and the baton will disappear. Press the button.
5. Type the name of your song—you can use up to ten letters and spaces in combination. Press RETURN.

The message "Saving," along with the name of the song, will appear. After a minute, this title will appear in your Music Library. Once your song is saved, you can load it into *The Music Studio* in the same way you load any of the pre-programmed songs.

Printing Music With the Commodore

You can print songs created with *The Music Studio* with a VIC 1525 (Commodore 1525) or Commodore MPS801 graphics printer. (Other graphics printers may be compatible as well.)

NOTE: Always be sure the printer is connected to your computer and turned on *before* loading *The Music Studio*.

To print a song:

1. Point at the printer symbol (46) on the Music Editor screen and press the button.
2. Point the baton at a space to the right of "Title" and press the button. The baton will disappear. A yellow square will automatically appear. Type in the title of the song you wish to print and press RETURN. The baton will automatically reappear.
3. Make sure the disk containing the song is in the disk drive. Move the baton to "Start Printing" at the bottom of the screen and press the button. The music will begin to print.

If your song is still printing after five minutes, the television screen will go blank, but the score will continue to print to the end.

THE SOUND ENGINEERING ROOM

In the Sound Engineering Room, you can alter the sound of the pre-programmed instruments. You can also create your own instrument sounds and special effects.

To enter the Sound Engineering Room:

1. Point the baton at the **Sd** symbol (11) on the Music Editor screen and press the button.
2. Point at the **ADSR** symbol (12) and press the button.

The **ADSR** alters the sound timbre, the type of sound that is produced. Each instrument has a unique timbre.

The **Attack (A)** affects how quickly a sound begins. For example, a guitar has a very fast Attack time, while a trumpet has a very slow Attack time.

The **Decay (D)** affects how quickly the initial sound dies away. On a piano, for example, as long as a key is held down, the sound will be heard for a long duration. However, the volume will gradually diminish.

The **Sustain (S)** affects the quality of a sound after the attack. On a trumpet, for example, the Sustain is relatively constant. As long as the musician blows air into the horn, a sound will be heard.

The **Release (R)** affects how the sound dies off when the note is no longer heard—for example, when a trumpet player stops blowing or a piano player releases the key to its original position.

You can change the **ADSR** of all the instruments in *The Music Studio* in the Sound Engineering Room. Experiment to see what kinds of sounds you can make as you compose songs. You'll find that the value of a note, for example, will also affect the timbre. For starters, try experimenting with "Hi Hat" on the instrument palette. It uses "white noise" and can be used to make some very interesting sounds and special effects.

If you plan to test sounds with a song, you must either write the music or load it into your computer's memory before going to the Sound Engineering Room.

The Sound Engineering Rooms of *The Music Studio* on the Commodore and Atari are different. The Commodore is discussed below, the Atari beginning on page 48. Instructions for Renaming, Copying and Saving the sounds you create on either system begin on page 26.

Exploring Sound on the Commodore

The Sound Engineering Room gives you control of the Sound Interface Device (SID) chip in the Commodore.

When a feature in the Sound Engineering Room is highlighted in yellow, that feature is active; when it's gray, it's either inactive or cannot be used for that particular instrument. Whenever you can't activate a feature, try picking another instrument.

The Pre-Programmed Instruments

The pre-programmed instruments, all color-coded, are listed at the bottom of the screen. The ADSR parameters of these instruments have been previously set. Whenever you select an instrument in the Sound Engineering Room, its settings will automatically appear in the ADSR box in the upper left corner of the screen.

To listen to an instrument sound:

1. Point at any instrument on the list at the bottom of the screen and press the button. The screen border will change color to match that of the instrument you chose.
2. Point at the scales (44) next to the ear symbol and press the button. You'll hear continuous scales played by your chosen instrument.
3. To turn off the scales, press the button again.

To adjust the speed of the scales:

1. While the scales are playing, point at the small notes in the grey area directly above the scales and press the button.
2. To speed up the scales, point at the sixteenth note on the left; to slow down the scales, point at the whole note on the right.

Three Voices

The Commodore can play up to three different instruments, or "voices," at the same time. These voices are represented in a box containing three symbols (19)—vertical gray rectangles, each with a square box at the top and an oval at the bottom. They're located just below the scales.

The square boxes contain the instrument colors selected for each voice. The ovals control the on-off switch for each voice.

When you enter the Sound Engineering Room, Voice 1 is the only voice that remains on, as indicated by the yellow oval. Voices 2 and 3 are off, as indicated by the gray ovals.

You can assign a different instrument to each voice or the same instrument to all three voices. Whenever you change the instruments, change Voice 1 last, since selecting any instrument always changes this voice.

To change instruments for each voice:

1. Point at an instrument name at the bottom of the screen and press the button.
2. Point at the square on top of the middle gray rectangle (Voice 2) and press the button. The square will change color to match that of the instrument you picked.
3. Repeat steps 1 and 2 for Voice 3.
4. To select an instrument for Voice 1, point at a new instrument name on the list and press the button.

To test the sound, turn on the scales. Since only Voice 1 is on, you'll hear the instrument sound for Voice 1.

To turn on Voices 2 and 3, point to the gray oval for Voice 2 and press the button. The oval will turn yellow. Repeat the process for Voice 3.

To turn off Voice 2 or 3, point to the yellow oval and press the button. The oval will turn gray.

To test sounds with a song that's in memory, point at the ear symbol (3) and press the button. If there's no sound, check to see that you've selected the ear symbol. The ear symbol will work only if there's music in the computer's memory.

To adjust the ADSR for a voice, first turn off the other two voices to get the clearest effect. Then turn on the scales (44) and follow these steps:

1. To change the Attack setting, point at the slider marked **a** and press the button. The baton will disappear when the slider is activated.

2. Move the slider up and down. Raising the slider lengthens the Attack, producing a slower note entrance. Lowering the slider shortens the Attack, producing a stronger note entrance.
3. To set the slider, press the button again. The baton will reappear.
4. Follow the same procedure to adjust the Decay, Sustain and Release. Raising the slider increases the duration of each parameter.

Setting the Octave

An instrument's octave setting determines how high or low it will be able to play, or its "range." You use the octave slider (47) to adjust the range. There are five octaves available in *The Music Studio*. The bottom of the octave range is to the left on the slider; the top of the octave range is to the right.

If a song has a lot of high notes, set at least one of your instruments at a higher octave setting. If none of the instruments matches the range of your song, it will have silences wherever an "out-of-range" note has been placed. You may want to experiment with octave settings for every song.

To adjust the octave setting:

1. For the clearest effect, only one voice should be on. Start the scales playing by selecting the scales (44). Point at the octave slider (47) while the scales are playing.
2. Press the button and move the joystick back and forth or slide the stylus across the touchpad. To set the octave, press the button again.

Adjusting the Waveform

The waveform section of the Sound Engineering Screen is located at the top center.

Every sound can be defined in terms of its waveforms. Waveforms affect the harmonic "overtones" of a sound—the subtle secondary tones that give an instrument its color or timbre. There are four types of waveforms, and each one gives you a different way to affect the sound. Here's what they're called:

- T = Triangle wave (has a full, bright sound with many overtones)
- S = Sine wave (has a pure sound with no overtones)
- P = Pulse wave (is used in combination with other waves to bring out certain overtones)
- N = White noise (contains a random mix of all overtones and is used to create percussive and wind-like sounds)

The letter codes for these waveforms appear on the screen beneath the window containing a picture of the wave. Above the window is another set of letter codes. These are combinations of the waveforms—*four more ways to shape your own instrument sounds.*

To adjust the waveforms:

1. Turn on the scales (44).
2. Point at the various letters (and combinations of letters) and press the button. Notice how the sound changes along with the wave picture.

Setting the Pulse Width

Any sound containing a pulse wave is also defined by its pulse width. The pulse width determines how many overtones are accentuated. If you select **P** (Pulse wave) for an instrument wave, you can also select its pulse width.

To set the pulse width of an instrument sound:

1. Point at the instrument and press the button.
2. Point at the **P** above **Waveform** and press the button.
The pulse width value appears as a four-digit number highlighted in a white box. A set of four green sliders lets you set the pulse width yourself.
3. With the scales running and the **P** (pulse wave) selected, point at one of the sliders and press the button. The baton disappears when the slider is activated.
4. Move the slider up and down, using the joystick or stylus. Press the button to set the slider.
5. Repeat the process with the other three sliders. The difference in sound is subtle.

The maximum pulse width is 4095.

Adjusting the Filters

Filters literally “filter out” certain frequencies from a sound. There are three types of filters:

The High Pass (Hp) Filter passes over the high frequencies in the sound, filtering out only its low frequencies, so the instrument will sound higher.

The Low Pass (Lp) Filter passes over the low frequencies in a sound, filtering out only its high frequencies, so the instrument will sound lower.

The Band Pass (Bp) Filter passes over the mid-range frequencies, filtering out high and low frequencies and boosting the mid-range.

The Music Studio lets you set the frequency limitations for these filters with the set of four sliders located above the word **Frequency**. Here's how:

1. With the scales turned on (44), select one or more of the filters **Hp**, **Bp** and **Lp**, located above the word **Filters**, and press the button. Be sure to point at the *letters*, not at the graphic representations above them.
2. Move to the four sliders to adjust the frequency of the filters—the sliders work in the same way as the pulse width sliders. You can select any one filter or any combination of filters. The difference in sound is subtle. Be sure one of the filters is on or you won't be able to work the sliders.

Setting the Resonance, Sync and Ring Modulation

These features let you add special harmonic and non-harmonic effects. They're located on the right side of the screen.

You can experiment with the Resonance, Sync and Ring Modulation whenever their names are highlighted in yellow. All have subtle effects on sound. It's best to experiment until you get the sound you want.

Resonance brings out a sound's harmonic overtones, adding an overall resonant quality to the instrument or sound you're working with. It works only when at least one filter is on. To adjust it, use the slider to the upper right of the word **Resonance**.

Sync combines (synchronizes) voices to produce unique harmonic overtones. To activate this, point to the word **Sync** and press the button. Point to **Sync** again and press the button to turn it off.

Ring Modulation combines voices to create non-harmonic overtones. It's useful for creating percussive and bell-like sound effects. Turn it on and off in the same way as **Sync**.

Since Ring Modulation and Synchronization work by combining voices, you must have at least two voices activated when using them. With three voices available, you have three combinations for experimenting with sound: Voices 1 and 3, 1 and 2, and 3 and 2.

Disk Access and Sound Effects

Just as you can create new instruments, you can create new sound effects. *The Music Studio* provides pre-programmed sound effects that let you create sounds such as trains, bells, crashes or a running man, using the same options you use to customize instrument sounds.

To load the sound effects:

1. Point to the disk symbol (1) on the Sound Engineering Screen and press the button. You'll go to the Music Library section of the studio, the "storage area" for instruments and sound effects. The instrument list is at the bottom, along with some disk commands, which are explained on page 28.
2. Load the "SNDEFFECTS" file by following the file loading procedure outlined on page 26.
3. Move the baton to the bottom of the screen and press the button.

You'll be back in the Sound Engineering Room, with the instrument names replaced by sound effect names.

You now have both instruments and sound effects at your disposal. You can adjust sound effects in the same way you adjust instrument sounds, using the options described in the preceding sections.

You can save your customized sounds on a separate, formatted disk in the same way you save songs—see page 28 for instructions.

Exploring Sound on the Atari

The Pre-Programmed Instruments

At the bottom of the Sound Engineering Room is a list of the 15 pre-programmed instruments and sound effects in *The Music Studio*.

The ADSR parameters of these instruments have already been set. If you select an instrument, its setting will automatically appear in the Sound Engineering Room. The vertical bars (**VOLUME**) in the middle of the screen show the volume levels for the ADSR; the horizontal graph (**TIME**) on the upper right indicates the duration of the ADSR.

To listen to an instrument sound:

1. Point at any instrument on the list and press the button. A small arrow identifies the instrument you've selected.
2. To hear the sound of the instrument you selected, point at the word **Voices** on the right side of the screen. You'll hear a continuous scale played by that instrument.
3. To turn off the scale, press the button again.

While the scales are playing, you can adjust the speed with the tempo selector (43). Here's how:

1. Point at the dot nearest **F** to speed up the tempo and press the button. These are sixteenth notes.
2. Point at the dot nearest **S** and press the button to slow it down. These are whole notes.

Three Voices

The Music Studio can play up to three different instruments ("voices") at the same time. Notice that each voice is identified by a number (1 to 3), displayed below the word **Voices**.

When you enter the Sound Engineering Room, Voice 1 is the only voice that remains on. In fact, it stays on all the time. You can tell Voice 1 is on because it appears in inverse video (a white number against a black background).

You can assign a different instrument to each voice or the same instrument to all three voices. Whenever you change the instruments for the voices, begin with either Voice 2 or 3. Change Voice 1 last, since selecting any instrument always changes this voice.

To change instruments for each voice:

1. Point at an instrument name on the list and press the button.
2. Point at the instrument name next to Voice 2 and press the button. The new instrument name will be assigned to Voice 2.
3. Repeat steps 1 and 2 for Voice 3.
4. To select an instrument for Voice 1, point at an instrument name on the list and press the button.

To test the sound, point to **Voices** and press the button. Since only Voice 1 is on, you'll hear the instrument sound for Voice 1 only.

To turn on Voice 2 and Voice 3, point to each number and press the button; notice that 2 and 3 turn to inverse video as you do so.

To turn off the sound, point at **Voices** and press the button.

NOTE: You can turn Voices 2 and 3 off and on separately by pointing at the numbers and pressing the button. When the voices are off, the inverse video will disappear and the numbers will again be black.

You can test the sound on any song in your computer's memory. Point to **Play Song** and press the button. If you don't get a sound, make sure that you selected **Voices** and that there's a song on the Music Editor screen—that is, currently in your computer's memory.

To adjust the ADSR for a voice:

1. Turn off the other two voices to get the clearest effect. Then point to **Voices** and press the button.
2. To adjust the volume of Attack, point at the slider in the **a VOLUME** column and press the button. The baton will disappear and the **a** will change to inverse video.
3. Move the slider up and down the column. Press the button for the setting you want. Listen to the difference in the sound.
4. Follow the same procedure to adjust the Decay, Sustain and Release volume levels.

5. To adjust the duration of the Attack, point to the horizontal slider a above **TIME** and press the button, then move the slider to the right or left and press the button.
6. Follow the same procedure to adjust the duration for the Decay, Sustain and Release.

Special Sound Effects

The Music Studio has a variety of pre-programmed special sound effects that sound like "white noise" instead of musical instruments. As with the musical instruments, you can vary these sounds by adjusting the ADSR.

Two special sound effects are located on the instrument list ("Hi Hat" and "Castinets"). You can access more sound effects through the special sound effects box (20), the small box with a number located just above the instrument list. Number 1 is activated whenever a musical instrument is selected. Numbers 2 through 5 are sound effects.

To pick a sound effect from the box:

1. Point at the number inside the sound effects box.
2. Press the joystick button to cycle through the numbers, 1 through 5. Stop when you get to 2, 3, 4 or 5.

To hear the sound, follow the instructions above for turning on and testing instrument sounds for each of the three voices.

To pick a sound effect from the instrument list, select "Hi Hat" or "Castinets" from the instrument list, then test it just as you test a voice.

Renaming Instruments and Sound Effects

With both the Commodore and the Atari, you can assign new names to distinguish the instruments and sound effects you create from the pre-programmed ones. For example, you may create a "piano" sound that you'd like to name "Piano 2."

To name instruments and sound effects in the Sound Engineering Room:

1. Point at **Name** in the lower right-hand corner of the screen and press the button. On the Commodore, **Name** is highlighted in yellow; on the Atari, **Name** has an arrow to its right.
2. Move the baton to the instrument or sound effect that you wish to rename and press the button. (On the Commodore, you can point at either the word or the colored box next to the word.)

If you're renaming on the Commodore, the name "piano" will disappear, a gray box will replace the instrument name and a black cursor will appear in the box; on the Atari, the name "piano" will disappear and be replaced by a black arrow.

3. Type the name you've chosen for the new instrument or sound effect—you can name it anything as long as the name has no more than eight characters—then press RETURN. If you press RETURN without having typed a new name, the original name will remain.

Copying Instruments and Sound Effects

The Music Studio lets you make copies of instruments and sound effects. For example, you may want to create two or more "clarinets" in the instrument file. This feature allows you to:

- Compose a song for three pianos, three violins, and so forth.
- Modify an instrument's sound while keeping its original sound available; just copy it onto the list and work on the duplicated version.
- *On the Commodore only*, extend the range of an instrument from three to five octaves. To do so, copy the instrument so that it appears on the file three times. Give instrument 1 the lower third of the octave range, instrument 2 the middle third and instrument 3 the upper third. See "Setting the Octave" on page 20.

To copy an instrument or sound effect:

1. Point at the instrument or sound effect you want to copy and press the button.
2. Point at **Copy** (on the Commodore, it's below **Name** on the right side of the screen; on the Atari, it's below **Name** on the left side of the screen). Press the button.
3. Point at the instrument line where you'd like the duplicated instrument to appear and press the button.

Saving Original Instrument Sounds and Sound Effects

You can save newly created, copied and renamed sounds for future use by storing them in sound files on a separate, formatted disk. You can save up to 15 different instruments and sound effects in each file.

Here's how:

1. Return to the Sound Engineering Room if you're not already there.
2. On the Commodore, select the disk symbol (1) on the left side of the screen; on the Atari 800, select the word **Disk** on the right side of the screen.

WARNING: Do not select the disk symbol or **Disk** unless a disk is in your drive.

3. Insert your formatted disk in the drive if you haven't already done so.
4. Just as you save a music file, point at **Save** and press the button. Move the baton to the long box until the word **Save** appears and press the button.
5. Type a name for the sound file (you can use up to ten letters, numbers and spaces combined) and press RETURN.

To load the sounds you've saved, select the disk on the Sound Engineering screen and follow the same procedure you do for loading a song (see page 6).

Return to the Music Editor screen to compose with the instruments and sound effects.

Note: If you save a pre-programmed song that uses original instruments and sound effects, your sounds will be saved with the song. See page 15 for instructions on formatting a disk and saving a song.

PAINTING MUSIC

The Music Paintbox is simplicity itself. It's a free-form method of composing, without the use of standard musical notation. If you're a novice musician, you can use the Paintbox for all your composing. With a little practice, you may want to test your talent on the Music Editor screen, where you'll learn more about basic musical notation and theory. If you're already familiar with musical notation, you'll enjoy the Paintbox's experimental method.

You can also use the Paintbox as a compositional shortcut. *The Music Studio* will transform a Paintbox composition into standard musical notation as you switch from the Paintbox to the Music Editor screen. You can do so by pulling the baton off the bottom of the screen and pushing the button.

Here's how the Paintbox works. Notes are "painted" onto the staff in the form of colored and patterned rectangles of varying size. The size of the rectangle determines how long the note will be held, and the color or pattern determines which instrument or sound will play it.

If you're using a Commodore, it's a good idea to go to the Sound Library and load the **INSTRUM'TS** sound file before using the Paintbox. This will assure you access to a complete variety of instruments. On either system, if you want to use an original sound file that you've saved on a separate disk, be sure to load it first. See page 42.

If you have a song on the Music Editor screen, it will appear when you go to the Paintbox screen. So if you want a clear screen for painting, you'll have to clear the "canvas." This will permanently erase the song onscreen. If you want to save a song before painting a new one, return to the Music Editor screen and follow the saving procedure described on page 15. (You can safely erase from the screen any pre-programmed song you've loaded from *The Music Studio* disk, since the song can always be loaded again.)

To clear the screen:

1. Point at the trash can (7) located at the bottom left corner of the Paintbox screen and press the button. You'll hear a sound warning you that the current song will be erased if you press the button again.
2. Press the button again to erase the song.

Inside the Music Paintbox

Notice that the Paintbox screen looks something like the Music Editor screen. The grand staff is displayed on the upper part of the screen, as are the column number, ear and trash can.

A couple of things look different. The instrument palette is laid out in one row and the note selection area has been replaced by a row of rectangles. Most of the musical symbols and editing functions are missing, but you'll find several new features. A "spilled ink" feature (22) allows you to erase your last set of entries automatically, a "replace" feature (23) lets you change one instrument in a song to another and a note eraser (21) lets you erase one note at a time.

Your new cursor will look like a felt-tipped pen. Use it to place notes on the staff by either "painting" up and down the staff or fixing notes in place. Once the notes are fixed, you can then change their color (Commodore) or color/pattern (Atari) or erase them.

Selecting an Instrument

The colors and patterns in the Paintbox represent different instruments.

To select an instrument for painting, move the pen to the instrument palette, point the pen at the color or pattern of the instrument you want, then press the button.

Painting With Rectangles

Instead of notes, the Paintbox has rectangles of five increasing widths representing the length of time a note will be held, from the smallest (a sixteenth note) to the largest (a whole note).

To place notes:

1. Point the pen at one of the black rectangles in Rectangle Row—the five boxes to the right of the spilled ink symbol (22).
2. Press the button. A red rectangle will confirm your choice.

3. Move the pen to the grand staff. The cursor will turn into the rectangle you've selected.
4. Paint across the staff without pressing the button to experiment with the sound. Press the button each time you want to place a note.

Point to the ear symbol (3) and press the button to play the notes you've placed. Select the ear symbol again to turn off the sound.

Correcting Mistakes

You can correct mistakes or make changes to your painted compositions by either erasing rectangles one at a time or erasing a group of rectangles at the same time.

To erase a single note:

1. Point the pen inside the square that has the fountain pen, single block and arrow (21). Press the button. A small **dark** blue (Commodore) or black (Atari) rectangle will appear in the box, indicating that you've selected the erase feature.
2. Place the cursor (a flashing rectangle the size of the note you just placed) over the rectangle (note) you wish to erase and press the button. The rectangle will disappear.

The eraser will erase any rectangle it touches when you press the button. The eraser will remain active until you turn it off by pointing the baton at the eraser symbol (21) again and pressing the button.

To erase a group of notes, point at the spilled ink symbol (22) and press the button. The program will instantly erase *only* those notes you placed on the screen the last time you visited the staff.

To erase everything:

1. Point to the trash can symbol (7) and press the button.
2. Press it again to confirm that you want to erase everything on the staff.

Changing Instruments

To substitute one instrument for another, you simply change the color or pattern of the rectangles on the grand staff.

To assign notes to a different instrument:

1. Point the cursor pen at the box containing a fountain pen and an arrow between two blocks (23). The cursor pen will change colors and a small black rectangle (Commodore) or flashing red triangle (Atari) will appear inside the changing instruments box. On the Commodore the color of the screen border will change to match that of the instrument you picked, just as on the Music Editor screen.
2. Point the pen at a new instrument color or pattern and press the button.
3. Move the pen to the grand staff and point at a note you want to change to the instrument, then press the button. All rectangles of that color or pattern will be changed to the new one. When you play the song, the new instrument will play those notes.
4. To switch back to painting, point to the change instrument symbol (23) and press the button. Move the baton to rectangle row and point at the rectangle you want, then press the button.

Saving Your Music

To save the music you write with the Paintbox, you use the Music Editor screen.

To save a painted composition:

1. Move to the Music Editor screen by moving the pen off the bottom of the Paintbox screen and pressing the button. Your painted composition will be transformed into standard musical notation as you return to the Music Editor.
2. Follow the same procedure you used for saving music from the Music Editor screen.

Don't forget—you can always see what your painted compositions look like in real musical notation by switching to the Music Editor screen. The rectangles will automatically be converted to standard musical notation.

BEYOND THE BASICS: A TOUR OF THE MUSIC STUDIO

This section is a reference guide to all the features in *The Music Studio*. Many of the options will already be familiar to you. These are briefly described. Others will introduce you to some of the advanced features and details of the program.

Remember, if you're not familiar with any of the terms, you can refer to the **SHORT GLOSSARY OF MUSICAL TERMS** at the end of the manual.

The Music Editor Screen



This is your main composing and editing screen.

Grand Staff

The grand staff is the two sets of five lines located on the upper half of the screen. Composed of the upper (treble) staff and lower (bass) staff, this is where you place notes, rests, measure bars and other musical notation.

Feature Identifier

In the upper left-hand corner is a word that tells you what option you're using—for example, "note," "rest" or "insert." When you move the note cursor around the staff, a letter will also appear to identify the staff position (note) the cursor is touching.

Screen Messages

Screen messages are words or numbers that let you know what feature you're using. The following abbreviations are used:

del col—delete column
del blk—delete block
insert—insert column
move blk—move block
copy blk—copy block
xnote—change note duration
xcolor—change note color (instrument)
marker—marker bar
measure—measure bar
rest—rest is being placed
note—note is being placed

Column Number

The three-digit number directly below the grand staff identifies the column number that the cursor is on. A column can be a single note, rest or measure or a stack of two or three notes.

Instrument Name

Below the column number is the name of the instrument that's being used.

Marker

Whenever the word "marker" appears below the screen message, you can then "mark off" a section of your song to listen to or edit. For

example, you may want to repeat or delete a section of your song, move a section to another place in the song or change to another instrument in only one passage.

To mark off a section:

1. Place the baton below the grand staff until the word "marker" appears.
2. Move the baton horizontally to the column you want to mark as the beginning of the passage. Press the button. On the Commodore a blue and purple block will appear; the blue area marks the beginning of the passage. On the Atari the block will be black and red, and the black area marks the beginning of the passage.
3. Select the column you want to mark as the end of the passage. On the Commodore a green block marks the end of the passage and the entire marker bar is purple; on the Atari a blue block marks the end of the passage and the entire marker bar is red.

Choose the editing function you want to use to change the passage. Your choices are: repeat, move block, delete block, copy block, change instruments and change note value. These are described in the Music Editor sub-menus section on page 36.

Key

A letter in the middle of the grand staff tells you what key you're in. The program automatically uses the key of C if you don't select another key.

Red Arrow

Lets you scroll music one column at a time in the direction of the arrow.

Music Editor Symbols

You'll find a complete list of the symbols used in *The Music Studio* on a separate reference card. Here's what they do:

End of Song (5). Marks the end of a song. It will move to the right as the song grows.

Key (14). Lets you add sharps, flats and naturals (called "accidentals") to your notes. After selecting the key symbol, you must select the accidental you want. Return to the key symbol to cancel the sharp, flat or natural.

Trash Can (7). Gives you the option of throwing away an entire piece. Erasing music from the screen will permanently erase it from the computer's memory.

Quarter Note (8). Use this to place notes on the grand staff. The program automatically uses the quarter note. Cycle through the options available to choose another note duration.

Words (18). Gives you the option of adding lyrics to your song.

Quarter Rest (13). Use this to place rests on the staff. The program automatically uses the quarter rest when you select this option. Cycle through the options available to choose another rest duration.

Disk (1). Select this to enter the Utilities Menu when you want to save and load songs. Always have a disk in the drive before you select this option.

Ear (3). Select this to play a song or a marked portion of a song without scrolling the music on the screen.

Running Note (2). Select this to play a song or a marked portion of a song with the music scrolling.

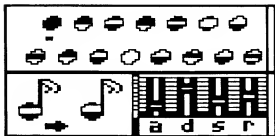
Printer (46) (Commodore only). Select this to print a song.

Sd (11), Mu (4), Ed (16), Ky (9). Select these to enter the four menus in the Music Editor screen. The program automatically uses the Sd menu. See the descriptions for each menu below.

Music Editor Menus

The menus available on the Music Editor screen expand the composing and editing capabilities of *The Music Studio*. Whenever you select one of them, the lower right-hand side of the screen will change. Everything else will stay the same.

Sd Menu (11)



Instrument Palette. Lets you choose your instrument, represented by a color on the Commodore or color/pattern on the Atari.

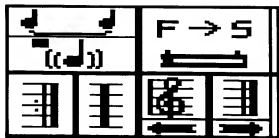
Instrument Changer (24). Displayed as a green note pointing to an orange note on the Commodore and as a red and blue note with an arrow pointing to a red and black note on the Atari, this lets you change the notes of one instrument into another instrument.

To assign notes to a different instrument:

1. Select the new color or pattern from the instrument palette. On the Commodore the screen border will change to that color.
2. Move the baton to the instrument changer symbol and press the button.
3. Point at any note on the staff that's the color of the instrument you want to change and press the button. All notes played by the old instrument will take on the color—and sound—of the new one.

ADSR. Stands for Attack, Decay, Sustain, Release. Select this to enter the Sound Engineering Room.

Mu Menu (4)



Tie and Slur (25). Use to connect two adjacent notes with a tie or slur.

If the two notes have identical pitches, the first note will sound continuously for the combined value of both notes—this is a tie. If they're different, you'll hear a smooth transition between the two notes—a slur. Be sure to turn off this option when you're done using it by activating the note symbol (8).

NOTE: Ties and slurs depend on the notes they connect and ADSR durations of the instruments playing the notes. Neither can be too short. Experiment with different ADSR levels and note values.

Note Sound ON or OFF (26). Beneath the tie symbol is a quarter note with curved brackets around it. It gives you the choice of having the sound on or off when you move the note cursor around the staff. The program defaults to the ON position, so if you want the sound OFF, select this symbol. Select it again to turn the sound back ON.

Repeat (27). Lets you repeat a passage of music without your having to re-enter all the notation. Here's how:

1. Mark the passage you want to repeat with the marker (see page 34).
2. Select the repeat symbol. When you press the button once, a number will appear below the column number.
3. Raise or lower this number (the repeat count) to match the number of times you want the passage repeated by moving the joystick or stylus to the right or left. Press the button. Once set, this number will appear above the repeat sign.

If you mark a repeated passage and select repeat, you can change the number of repeats indicated.

If you want to delete your repeat marks, use the delete column option (17) in the **Ed** menu, described below. If you wish, you can also change the repeat count to 001.

Measure Bar (15). Select this to place measure bars on the staff. Point to the column where you want the measure bar to appear; this will set the measure bar to the *left* of the pointer or column.

Tempo Selector Slider, Commodore (28). Use the vertical slider with **F** (fast) and **S** (slow) to adjust the relative speed (tempo) of the notes. Point at the small slider rectangle and press the button to activate it, then slide up or down with the joystick or stylus. Press the button again to set the tempo.

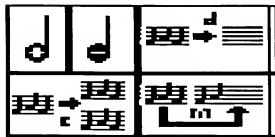
Tempo Selector Slider, Atari (28). The **F-S** symbol with the arrow in between lets you adjust the tempo of your song. Press the button to activate the slider—a black dot that slides back and forth on a red bar. Move the dot to the right or left and press the button to set the tempo.

Volume Control (45) (Commodore only). Lets you adjust the relative volume of a song. Slide to the left (softest) or right (loudest) and press the button.

End of Song/Beginning of Song (5, 6). These two symbols let you automatically move to the end of a song or return to the beginning.

Red Direction Arrows. Select the red arrows directly under the end of song/beginning of song symbols to move five columns to the right or five columns to the left.

Ed Menu (16)



Insert Column (30). The blue note with a plus sign in it is the insert column function. Use it to insert space within the score for more notes. You'll find the insert column option useful not only when you want to add notes in the middle of a song you're working on, but also when you're writing lyrics for a song and need to open up space between notes to accommodate the words of your lyrics.

To insert a column:

1. Select the insert column symbol.
2. Point to the place in your score where you want to insert a column. Press the button. All the notes to the *right* of the pointer will be pushed to the right one column.

Insert as many columns as you want, up to the maximum song length of 800 columns on the Commodore, 460 columns on the Atari.

Delete Column (17). The red note with the minus sign works in the same way as the **Insert Column** option. You may delete empty columns, columns with notes in them, and measure bars and repeat bars.

Delete Block (31). Select this option to delete more than one column. Use the **marker** (see page 34) to mark off the passage, select the delete block option, point anywhere above the marker bar and press the button.

All the music in the marked passage will disappear.

Copy Block (32). Use this to copy a passage of music you want to duplicate in another section of the piece. The original passage remains in its original position.

To copy a passage:

1. Mark off the passage you want to copy with the **marker**. See page 35 for instructions on marking off a passage.
2. Select the copy block option.
3. Point to the place in the score where you want to copy the passage and press the button. A copy of the passage will be inserted in the area you selected.

You can duplicate a passage as many times as you like, up to the maximum song length.

Move Block (33). Use this option to move a marked passage of music from one section of a score to another. The passage won't be duplicated as with **Copy Block** but will be moved from its original position to the new position. Follow the instructions for **Copy Block**.

NOTE: The baton will blink when a passage is marked and the copy/move/delete option is selected.

Ky Menu (9)



Change Note Duration (29). Lets you change the duration of a note to another value. You can change all the notes of that value throughout your piece (all quarter notes to whole notes, for example) or, with the marker bar, change notes of the same value in a specific section of your song.

To change a note duration throughout a song:

1. Select the note symbol (8) and keep pressing the button until you find the new note value you want, then release the button.
2. Select the change note duration symbol (29). A red square will tell you it's active.
3. Move the baton to the staff and select one note of the duration you want to change. Press the button. Every note of that duration will change.

To change notes in one section only, mark off that section. Then follow the steps above, and in step 3 select a note within the marked section.

Change Key. The two rows of key names let you change a song from one key to another. This is the first step you take to transpose music. Select the key you want. The key name on the left side will change and, if the new key has sharps or flats, they'll automatically appear on the staff. Use **Transpose Key** (below) to transpose the song to the new key.

Transpose Key (10). After using the **Change Key** option, use this to automatically transpose a song to the new key.

The Utilities Menu



All disk operations are handled through the Utilities Menu. Whenever you select the disk symbol (1) from the Music Editor screen or the disk symbol (Commodore) or **Disk** (Atari) from the Sound Engineering Room, the Utilities Menu screen appears. Remember, a disk must be in the drive when you select this option.

At the top of the Utilities Menu you'll find the name of the disk in your drive. Its contents appear right below the name, inside the "library" box, the large box in the middle of the screen.

The box below the library box is a message or "dialogue" box. This is where you enter text and where messages from the program appear.

Load

You can load a file from either the program disk (pre-programmed music, instruments and sound effects) or from your own music library and sound library disk.

NOTE: *The Music Studio* lets you save more than one page of song or instrument files in your instrument or sound library—up to 18 files per page. (A “page” is the file list that’s visible on the screen.)

When a library contains more than one page, a page number appears at the upper right corner of the screen, beginning with page 2, and a set of up-and-down arrows appears on the right. Select the arrows to switch back and forth between pages. On the Commodore, the pre-programmed songs are listed on two pages.

See pages 6 and 23 for instructions on loading songs and sounds.

Save

To store songs and sounds you’ve created, you must save them as files on a separate, formatted disk. See page 28 for instructions.

Updating Files

To update an existing file when you’re using a disk other than the program disk, select the filename from the library. The program won’t accept two files with identical names, so it will ask you if you’re sure. Press Y if you are. The old version will be erased, and in its place will be stored your updated version.

You can update a file as many times as you wish.

If you want to create two or more versions of the same piece of music, create two files with similar names, like Melody1 and Melody2. You can use up to ten characters for your filenames.

And remember, you can’t save your files on the program disk.

Rename

This option lets you rename a file in the library. To do so, select **Rename** and then point to the filename you want to change. When the word **Rename** appears to the left of the filename, press the button. Type the name you want and press RETURN. If you press RETURN without typing anything, the file will not be renamed.

Delete

Delete lets you erase a file from a disk, so you can “clean house” and make room for additional files. Select **Delete** and choose the filename you want to throw away. The program will ask if you’re sure. If you are, press **Y**. Press any other key to cancel the command.

Append

Append lets you add a song from a file onto the end of the song that’s in the computer’s memory (the song on the **Music Editor** screen). You can then edit the music and save the whole song as one piece. The song already on the **Music Editor** screen will always appear before the one you add from the file.

NOTE: The combined lengths of the songs cannot exceed the maximum song length—800 columns on the Commodore or 460 columns on the Atari. If the new, combined song is too long, the program won’t accept the appended file and will let you know the song is “too big.” Songs with lyrics cannot be appended.

To append one song to another:

1. Select **Append**.
2. Select the name of the file you want to append to the song on the screen, just as you do when loading a file. The file will load into memory. When you return to the **Music Editor** screen, it will appear at the end of the song.

Change Disk

Whenever you put a new disk in the drive in the middle of a writing session, you must tell the program you’re changing disks by selecting the **Change Disk** command. It will then put the new disk name and its library into the music files and on the screen.

You’ll want to change disks if, for example, you’ve run out of room on a disk and want to save something, or if you want to get a file from another disk.

Init Disk

Use this command to format or “initialize” a disk so that it can store music and sound files. You can initialize either a blank disk or a disk with files you want to throw away. Remember, each time you initialize a disk, everything on that disk will be erased. See page 15 for instructions.

The Sound Engineering Room

To enter the Sound Engineering Room, select **ADSR** in the lower right-hand part of the Music Editor screen. If you can't find **ADSR**, be sure you've selected the **Sd** menu.

In the Sound Engineering Room, you can change the quality of instrument sounds and create original sound effects for your compositions. When you save your music, these new sounds will be saved along with it.

The Sound Engineering Rooms on the Commodore and Atari vary somewhat in details. The Commodore Sound Engineering Room is described below; if you have an Atari computer, see page 48.

The Commodore Sound Engineering Room



Pre-Programmed Instruments

The color-coded instrument file lets you select an instrument from either the pre-programmed list or the files you've created and stored on another disk. (Follow the **Load** instructions on page 23 to load original instruments and sound effects.) The screen border matches the color of the selected instrument.

ADSR Slider (12)

This lets you vary the sound for each pre-programmed instrument by adjusting the A (Attack), D (Decay), S (Sustain) and R (Release) levels. For the most accurate reading, only one voice should be on at a time.

Scales (44)

Select the **Scales** symbol (44) to test new sounds. You can continue adjusting the ADSR while the scales are playing. It's best to play one voice at a time when testing sounds. Select the **Scales** symbol again to turn off the sound.

Scale Speed (43)

This lets you adjust the relative tempo of the scales from the 16th note (the fastest) to a whole note (the slowest).

Voice Activator (19)

This symbol represents the Commodore's three "voices" and lets you vary instrument sounds and sound effects, voice by voice. When a voice is on, the oval is yellow; when the sound is off, the oval is gray. Voice 1 is always on and should be adjusted last. The square indicates the current instrument color for each voice. See page 18 for details on working with voices.

Ear (3)

Use this option to listen to music with your new instrument sounds and sound effects.

Octave Slider (47)

Lets you adjust the octave range, using the five octaves available.

Waveform

This lets you adjust the waveform for each voice: **T** (Triangle wave), **P** (Pulse wave), **S** (Sine wave) and **N** (White noise). See page 20. for details.

Pulse Width

Lets you select the pulse width for each instrument. Select **P** (Pulse wave) and use the green sliders located inside the white box above the **P**. The maximum pulse width is 4095. See page 21 for more information.

Filters

The filters let you set the frequency limitations for each sound. To do so, adjust the slider scales above the word **Frequency** and point to each filter abbreviation: **Hp**, **Lp** and **Bp**. A graphic representation for each filter is displayed above the filter name.

Resonance, Sync and Ring Modulation

These options let you add special harmonic effects. **Resonance** works when at least one filter is on. **Sync** (Synchronization) and **Ring Modulation** work by combining at least two voices. Use the slider above the word **Resonance** to adjust the resonance.

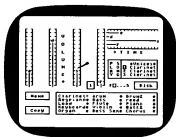
Rename or Copy Instruments and Sound Effects

Use the **Name** option to rename any instrument or sound effect. To copy an instrument or sound effect, use the **Copy** option. This is useful when, for example, you want to create a piece for three pianos, each one having a different ADSR.

Disk (1)

Select the disk symbol to enter the Sound Files area of the Utilities Menu. You can store up to 15 instruments and sound effects for each file—see page 28. To return to the Sound Engineering Room, move the baton off the bottom of the screen and press the button.

The Atari Sound Engineering Room



Instrument List

At the bottom of the screen is a list of pre-programmed instruments and sound effects. You can vary these, voice by voice, using the features in the Sound Engineering Room.

Adjusting the ADSR Volume and Duration

You can create variations on instrument sounds for each pre-programmed instrument by adjusting the ADSR (Attack, Decay, Sustain and Release) volume levels and durations. To get the most accurate reading, only one voice should be on. See page 25.

Select and then move each slider on the vertical (**VOLUME**) ADSR columns to adjust the volume of the ADSR. Follow the same procedure on the horizontal (**TIME**) ADSR graph to adjust the duration. See page 25.

Testing Voices

Select **Voices** to test new sounds by playing scales continuously. You can continue adjusting the ADSR while the scales are playing. Select **Voices** again to turn off the sound.

Play Song

This option lets you test your new sounds on any song currently on the Music Editor screen. Select **Play Song** to turn the song on and off.

Voices (19)

This symbol represents the Atari's three voices. Voice 1 is always on. Select the numbers next to Voice 2 and Voice 3 to turn the second and third voices on or off. You can assign different instruments from the instrument list to each voice or use the same instrument for two or three voices. Always change Voice 1 last. See page 25.

Scale Speed (43)

Lets you adjust the relative tempo of the scales as they're playing.

Special Sound Effects Box (20)

Use this option to turn on sound effects and cycle through your choices. Numbers 2 through 5 are for special sound effects. You can adjust the ADSR for each sound. See page 17.

Rename or Copy Instruments and Sound Effects

Use the **Name** option to rename any instrument or sound effect. To copy an instrument or sound effect, use the **Copy** option. This is useful when, for example, you want to create a piece for three pianos, each one having a different ADSR. See pages 26 and 27.

Entering the Sound Files Area

Select **Disk** to enter the Sound Files area of the Utilities Menu. You can store up to 15 instrument and sound effect files for each file—see page 28. To return to the Sound Engineering Room, just move the baton off the bottom of the screen and press the button.

The Music Paintbox



In the Paintbox, you “paint” notes on the screen. Instead of a baton, you use a cursor that resembles a felt-tip pen to place rectangles on the screen instead of notes. All painted compositions can be automatically transposed to musical notation on the Music Editor screen.

The top half of the Paintbox screen looks like the top half of the Music Editor screen, except that the only screen messages are the key signature and column-identifying number. The Paintbox symbols are summarized below; for more details on each one, see the section beginning on page 35.

Rectangle Row

Each size of rectangle represents a different note duration. Paint the rectangles across the screen, using the same procedure you use for placing notes on the Music Editor screen.

Instrument Palette

You can select a color (Commodore) or a color or pattern (Atari) to assign instruments to your notes.

Trash Can (7)

You can erase the whole screen by selecting the trash can symbol. You must press the button twice to erase the screen. Discarded songs will be permanently erased.

Spilled Ink (22)

This option erases only the notes you placed on the screen the last time you painted.

Note Eraser (21)

Use this to erase a single note. Select it and point to the note you want to erase.

Instrument Changer (23)

As on the Music Editor screen, you can substitute one instrument for another. Select the instrument changer, the new instrument color or pattern and any rectangle you want to change on the staff. All notes using the old instrument will automatically change to the new one.

Ear (3)

The ear lets you listen to painted compositions.

APPENDIX: USING A MIDI-COMPATIBLE INSTRUMENT WITH THE COMMODORE

With a Commodore 64 or 128, you can use *The Music Studio* with a standard MIDI-compatible instrument such as the Yamaha® DX7 or Casio® CZ-101. Use the Passport MIDI Interface; see your instrument and interface owner's manuals for instructions on installing and connecting your equipment. *The Music Studio* sends out information over MIDI channel 1, so you must make sure that your instrument is set up to receive over channel 1.

While the Commodore's internal sound capability can play up to three different instruments at once with accented notes, the MIDI interface will send only "NOTE ON" and "NOTE OFF" signals without any preset or volume information. This means that you must use your MIDI-compatible instrument functions to manually select the sound to be generated when you play songs composed with *The Music Studio* through your instrument. All the notes in a song will be played by the one voice selected on your instrument and at the same volume.

To play music from *The Music Studio* on a MIDI-compatible instrument, you must use the ear symbol (3); the running note symbol (2) will not work.

<p>NOTE: The Sound Engineering Room is not intended to be used with MIDI-compatible instruments.</p>

A SHORT GLOSSARY OF MUSICAL TERMS

Accent

An accent sign with a note means that the note should be played louder than the other notes. In *The Music Studio*, the accented note is played to the maximum volume ("ff").

Chord

A chord is formed by two or more notes playing at the same time. In *The Music Studio*, two or three notes in the same column will form a chord.

Dotted Notes

Placing a dot after a note increases that note's duration by half of its original number of counts. For example, if a half note equals two counts, a dotted half note will equal three counts.

Keys and Key Signature

A song using the notes C-D-E-F-G-A-B-C would be in the key of C-major. A song using the notes in a G-major scale (G-A-B-C-D-E-F-sharp-G) would be in the key of G.

You can tell what key a song is in by looking at the beginning of the staff. This is called the key signature.

For example, the notes of the G-major scale include one sharp—an F-sharp. Whenever you see a key signature consisting of one sharp (in this case, on the F line), you know the key is G-major. If you're in the key of G and you want to notate an F without a sharp, you must use the natural symbol.

Measure Bars

These are used to separate the staff into sections of equal duration. For example, in a song written in 4/4 time, each measure contains notes whose combined values equal four counts.

Notes

Notes are used to represent musical tones. The duration and pitch of a tone is determined by the note's shape and position on the staff.

Octave

The interval between one note and the next one having the same name is called an octave. Notes of the same name have a similar sound.

Pitch

Pitch is the high or low quality of a musical tone, determined by the frequency, or number of vibrations per second, of a sound. Each pitch, or tone, is represented by a different note on the scale.

Repeats

If you'd like to repeat a musical passage, you don't have to notate the entire passage again. Just use repeat signs. The repeat sign designates a repeat from any point in the song where the repeat sign has been placed.

Rests

In musical notation, silence is indicated by a "rest." Rests, like notes, are categorized by their durations.



whole note rest

4 counts



eighth note rest

$\frac{1}{2}$ count



half note rest

2 counts



sixteenth note rest

$\frac{1}{4}$ count



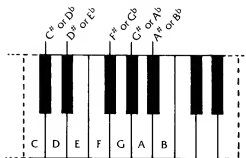
quarter note rest

1 count



thirty-second note rest $\frac{1}{8}$ count

Scales



A scale is a succession of tones with specific distances between them. Scales are usually played in a descending/ascending order. The most common example of a scale is "Do-Re-Mi-Fa-So-La-Ti-Do," known as a major scale. There are also minor scales, chromatic scales, Dorian scales and many more. If the word "Do" in the above scale were a C note, the scale would be a C-major scale, and the notes would be C-D-E-F-G-A-B-C.

Sharps and Flats

These "accidentals" are used to indicate the tones between the letter-notes, except between B and C and between E and F, which are themselves half tones and can't "squeeze" a tone in between. Sharps raise notes a half-step; flats lower notes a half-step. Naturals cancel out sharps and flats.

On the screen display and in your print-outs, accidentals will appear *above*, not next to, the notes.

The Staff

Musical notation is written on a series of horizontal lines and spaces called the staff. The grand staff, like the one used in *The Music Studio*, is composed of the treble staff and the bass staff. The treble staff is the upper staff, the bass staff the lower one. Together, they'll accommodate all the notes you'll use.

Tempo Markings

Tempo markings tell a musician how slow or fast to play the music. In *The Music Studio*, you'll find them under the tempo selector (4) in Italian. (Standard musical notation is usually written in Italian.) They range from "Grave" (very slow) to "Prestissimo" (very fast).

Ties

You can sustain (hold) a note from one note to the next note by using a "tie" sign. The two notes must have the same pitch and must be next to each other. Although only the first note is played, it's held for the combined duration of both notes.


A tie that connects two or more notes of different pitches is called a "slur."

Time Signature

Used to designate the number of beats for each measure, the time signature is displayed as a fraction; the top number is the number of beats in a measure, and the bottom number is the note value that has one beat. For example, 3/4 means there are three beats to a measure and a quarter note gets one beat; in 4/4 time, there are four beats to a measure and a quarter note gets one beat.

Time Value of Notes

A note's duration is shown by the way it's drawn on the staff. Each type of note is held for a different number of counts, as follows:

	whole note	4 counts		eighth note	$\frac{1}{2}$ count
	half note	2 counts			
	quarter note	1 count		sixteenth note	$\frac{1}{4}$ count

Transpose

When a song's range is either too high or too low, you can transpose, or change it to another key. In *The Music Studio*, the program does all the transposing for you—instantly. Otherwise you'd have to do it all by hand.

Triplets

A group of three notes played for the duration of two notes of the same value is called a triplet. In *The Music Studio*, the number 3 designates a triplet.

Volume Markings

Known as “dynamic” signs, these indicate how loudly or softly the music should be played. In *The Music Studio*, you'll find them to the left of the volume control slider (15), ranging from “pp” (very soft) to “ff” (very loud).

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